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RELEASED

74-0383

Data On Cost Growth
On Construction Contract For
Safeguard Anti-Ballistic
Missile Facilities At
Grand Forks, North Dakota B-164250

Department of the Army

BY THE COMPTROLLER GENERAL
OF THE UNITED STATES

SEPT. 7, 1973

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-164250

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The Honorable Mark Andrews
House of Representatives

Dear Mr. Andrews:

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We advised you on April 26, 1973, that we would apprise you of the results of our examination into the extent of actual and potential cost increases to contract DACA 87-70-C-0013, awarded for construction of Safeguard facilities at Grand Forks, North Dakota.

The Corps of Engineers has requested that the information regarding Government estimates not be released to the public because of the potential effect on the settlement of the price for outstanding claims. Therefore we have placed a special notice on this report that its public release may not be in the best interests of the Government.

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We are also sending this information to Senator Stuart Symington in response to his request. We plan no further distribution of this report.

Sincerely yours,

A handwritten signature in cursive script that reads "James B. Arto".

Comptroller General
of the United States

DATA ON COST GROWTH ON
CONSTRUCTION CONTRACT FOR
SAFEGUARD ANTI-BALLISTIC MISSILE FACILITIES
AT GRAND FORKS, NORTH DAKOTA

SPECIAL NOTICE

The Corps of Engineers has requested that the information regarding Government estimates contained in this report not be released to the public because of the potential effect on the settlement of the price for outstanding claims. Therefore, we have placed a special notice on this report that its public release may not be in the best interests of the Government.

SCOPE OF INQUIRY

We looked into the extent of ~~actual and potential cost increases to contract~~ DACA 87-70-C-0013, awarded for construction of Safeguard facilities at Grand Forks, North Dakota. Also, we obtained data on the reasons for significant differences between the Government estimates and the contractor's proposals for unnegotiated change orders, the reasons for changes, and the amount of the current working estimate from the Corps' division office in Huntsville, Alabama, which had responsibility for administration of the contract.

We did not obtain formal comments on this report; however, we discussed the data with the Corps' division engineer on May 18, 1973. He agreed in general with the facts presented.

CONTRACT DATA

Contract DACA 87-70-C-0013 was awarded on March 31, 1970, to Morrison Knudsen Company and Associates, the lowest of three bidders, for about \$138 million. As of April 30, 1973, the Corps' estimate of costs to complete the contract was about \$186 million--an increase of about \$48 million.

CHANGE ORDERS

As of April 30, 1973, a total of 446 change orders had been issued to the contract, of which 152 had been settled at a negotiated price of \$6.9 million. This increased the contract price to about \$145 million. Nineteen changes had been canceled leaving a total of 275 change orders for which the price was still to be negotiated.

APPENDIX

The contractor had submitted proposals of about \$113 million for 256 of the 275 changes. The Corps' estimate for the 256 changes, however, was only \$22.3 million, i.e., \$91 million less than the contractor's estimate. The Corps' estimate for the remaining 19 changes was \$0.6 million. A total of \$19 million in partial payments for unnegotiated change orders had been made to the contractor, increasing the contract value to about \$164 million.

In addition to the proposals for unnegotiated changes, the contractor had submitted 43 claims as of April 30, 1973, which may result in additional costs. The contractor's estimate for 9 of the 43 claims was about \$1.5 million but estimates for the others had not been submitted. Contractor claims, if allowed by the contracting officer, will result in change orders to the contract. The above data regarding change orders and claims is summarized in the table on page 5.

REASONS FOR DIFFERENCES IN ESTIMATES

Reasons for differences between the Government estimates and the contractor's proposals could not be readily identified for specific unnegotiated change orders, according to the Corps. If specific reasons were known, negotiations would be simplified.

The Corps advised us that generally the contractor's proposals greatly exceed the Corps' estimates because the contractor

- makes estimates on the basis of worst conditions rather than average conditions since the contractor is unable to accurately estimate the interaction of a single change order with others that will be done in the same time frame,
- estimates labor productivity lower than may be experienced,
- overestimates equipment usage, and
- proposes excessive amounts for subcontract work, supplies, overhead, bonds, and profit.

The contractor overstates its estimates, according to the Corps, in order to have a better bargaining position.

Although the Government estimates consider conditions requiring rework, they do not provide for unknown factors such as

- increased cost of refabrication or retesting work in-process at offsite plants,
- increased cost that may result from the impact of change orders on unchanged work, and
- certain other factors, such as specially fabricated materials that may have to be scrapped.

According to the Corps, it is more practical to price these conditions at zero and require the contractor to identify the impact and justify the cost during negotiations.

Although the reasonableness of the Government estimates or contractor's proposals for the unnegotiated changes cannot be determined until negotiations are completed, it is interesting that for the 152 negotiated changes the contractor settled for \$6.9 million, i.e., 46 percent less than the \$12.5 million proposed. The Government estimate for these changes was \$6.3 million.

REASONS FOR CHANGES

The Corps initiated change orders for such reasons as correction of design because of errors, omissions, or conflicts in the original drawings and specifications; changes in Government-furnished property; and unanticipated site conditions. Other Safeguard agencies initiated engineering changes which were required to make the system perform properly. Also, such agencies initiated change orders which added certain work not provided for by the basic contract, such as installing heavy pieces of equipment. According to the Corps, this work was not the Corps' primary responsibility but was added to the construction contract using procurement funds because the work was considered essential and could be accomplished by the construction contractor with less program impact.

Our analysis of data furnished by the Corps on the reasons for the 427 change orders is shown in the table on page 6.

CURRENT WORKING ESTIMATE

The Corps originally estimated the cost of the contract, excluding supervision and administration costs, at \$145 million--\$126 million for the basic award and \$19 million, or 15 percent of the estimated award price, for a contingency reserve for contract changes. The award price of \$138 million was about \$12 million higher than estimated and the contingency reserve was thereby reduced to about \$7 million. The reserve was later increased in increments totaling about \$34 million to \$41 million, or about 30 percent of the award price.

APPENDIX

The amount of the reserve was based on consideration of known and potential changes to the contract plus experience gained on other projects constructed concurrently with weapon system development. The total current working estimate as of April 30, 1973, was about \$186 million, which included the award price, the reserve, and funds of about \$6 million provided for additional work. Analysis of the increases in the current working estimate is shown in the table on page 7.

In February 1973 the Corps advised the Department of the Army that the reserve of \$41 million plus other funds provided for specific work assigned should be adequate to settle all changes, but that negotiations could possibly reveal unknown conditions which could further increase costs. Corps officials do not expect the negotiations for all changes to be completed until 1974.

COST DATA FOR EXISTING AND
POTENTIAL CHANGES TO CONTRACT -0013

AS OF APRIL 30, 1973

	<u>Contractor proposal</u>	<u>Government estimate</u>	<u>Negoti- ated price</u>	<u>Contract value</u>
	----- (000 omitted) -----			
Award price	-	-	-	\$137,859
Change orders is- sued:				
Settled (152)	\$ 12,545	\$ 6,258	\$6,874	6,874
Unsettled-- contractor proposals received (256)	113,064	22,324	-	^a 19,057
Unsettled-- contractor proposals not re- ceived (19)	-	636	-	-
Known potential change orders:				
Change orders ready to be issued (3)	-	4	-	-
Unresolved contractor claims (43)	^b 1,476	-	-	-
Total contract value at April 30, 1973				<u>\$163,790</u>

^aPartial payments for 165 unsettled change orders determined to involve dollar sums too substantial to require the contractor to finance before settlement.

^bThis estimate applies to only 9 of the 43 claims submitted. The contractor has not submitted estimates for the other 34.

APPENDIX

ANALYSIS OF REASONS FOR CHANGE
 ORDERS ISSUED TO CONTRACT -0013
 AS OF APRIL 30, 1973

Reasons for change orders	Settled change orders		Unsettled change orders		
	Number	Amount	Number	Government estimate	Contractor proposal
		(000 omitted)		----- (000 omitted) -----	
Initiated by Corps of Engineers:					
Correction of errors, omissions, or inconsistencies in the drawings and specifications	40	\$1,129	102	\$15,759	^d \$ 74,718
Correction of miscellaneous items	7	70	5	137	177
Correction of safety problems	3	13			
Changes required because of Government-furnished property	42	169	47	629	^a 8,345
Cost reduction	10	-60	7	-627	^a 1,664
Site conditions encountered different than anticipated	4	144			
Environmental protection, such as a change in sewage treatment facilities	3	297			
Additional testing required	2	4	8	803	^a 447
Support requirements, such as temporary office space for Government inspection personnel	6	133	1	50	385
Acceleration of construction	1	2,225			
Earlier than anticipated occupancy of selected rooms needed to allow installation of communication facilities	2	17	4	30	^a 65
Administrative changes	7	-35	3	157	^a 297
Total	127	4,106	175	16,938	86,128
Initiated by Safeguard System Command, Safeguard Communications Agency, or weapon system contractor:					
Essential for proper operation of weapon system	11	509	59	3,527	^a 17,990
Improve performance in the operation of the facility	3	62	5	591	3,467
Cost savings to the overall program considering hardware and facilities	3	-38			
Correction of safety problems	1	28	3	133	474
Installation of heavy equipment	4	1,982	16	969	^a 1,777
Installation of temporary structures in support of the weapon system contractor	2	55	14	953	^a 3,086
Additional work in support of the Safeguard Communications Agency, such as installation of shock-mounted platforms for communications equipment	1	170	2	30	123
Onsite testing to support radio frequency interference studies			1	19	19
Total	25	2,768	100	6,022	26,936
Total	152	\$6,874	275	\$22,960	\$113,064

^aFor 19 unsettled change orders, contractor proposals had not yet been received.

INCREASES IN THE
CURRENT WORKING ESTIMATE
FOR CONTRACT -0013

————(000 omitted)————

Current working estimate at time of award:		
Contract award price		\$137,859
Contingency reserve		<u>6,893</u>
Total		144,752
Increases in contingency reserve:		
October 1970	\$13,787	
October 1971	<u>20,679</u>	
Total contingency in- creases		\$34,466
Funds provided for additional work beyond the scope of the basic contract		<u>6,376</u>
Total increase since con- tract award		<u>40,842</u>
Total current working es- timate as of April 30, 1973		<u><u>\$185,594</u></u>